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ABSTRACT

This project was designed to study the process of parents teaching preschool age children using a direct observational method. Six mothers and their own three-year-old sons from seven ethnic groups participated: middle-class Anglo, lower-class Anglo, English-speaking Mexican-American, bilingual Mexican-American; Spanish-Speaking Mexican-American, English-Speaking Chinese-American, Chinese-speaking Chinese-American. In addition, four groups of the mothers taught a second child from their ethnic and social class background, and a third child from an ethnic and social class different from their own. Each mother taught a cognitive sorting game and a motor skill game to each of the children assigned to her. Data were organized in terms of "own child" data and analyzed by means of a one-way analysis of variance, and predicted trends; the "social distance" data were analyzed in a 3 x 2 x 2 mixed factorial design. The data were coded usin g a Parent Interaction Code which allowed analysis of the teaching interaction in terms of programmatic variables: total time, input and pacing; and teaching loop variables: alert, format, child response, and feedback. The single best predictor of maternal teaching, or child response, was ethnicity with some replication of earlier social-class differences. The results tend to support stable constellations of behaviors within ethnic groups of a subtle nature. Further research is recommended. (Author/CK)

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THE OBSERVATION OF PARENTS AS TEACHERS OF PRESCHOOL CHILDREN AS A FUNCTION OF SOCIAL CLASS, ETHNICITY and cultural distance between parent and child

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Summary

This project was designed to study the process of parents teaching preschool age children using a direct observational method. Six mothers and their own three-year-old sons from seven ethnic groups participated: middle-class Anglo (AA_m), lower-class Anglo (AA_l), English-speaking Mexican-American (MA_e), bilingual Mexican-American (MA_b), Spanish-speaking Mexican-American (MA_s), English-speaking Chinese-American (CA_e), and Chinese-speaking Chinese-American (CA_c). In addition, four groups of the mothers--AA_m, AA_l, MA_e, MA_b--taught a second child from their ethnic and social class background, and a third child from an ethnic and social class different from their own. A total of 42 mothers and 90 children were in the study. Each mother taught two games, a cognitive sorting game, and a motor skill game to each of the children assigned to her individually. Data were organized in terms of "own child" data and analyzed by means of a one-way analysis of variance, and predicted trends; the "social distance" data were analyzed in a 3 x 2 x 2 mixed factorial design, social distance from mother by ethnicity by social class. The interaction was recorded on videotape. The data were coded using a Parent Interaction Code which allowed analysis of the teaching interaction in terms of programmatic variables: total time, input and pacing; and teaching loop variables: alert, format, child response, and feedback. Coders were selected from each of the three ethnic groups. The single best predictor of maternal teaching, or child response, was ethnicity with some replication of earlier social-class differences. Although there were fascinating differences between ethnic groups, the picture tends to support stable constellations of behaviors within ethnic groups of a subtle nature. Both the child's relationship to the mother, and his differential response to her elicited some modifications in her strategies. It was clear that the young children in this study experienced different learning environments and that the result of these experiences will be different skills and expectations brought by them into the classroom.

Further research is needed for effective integration of family and school educative resources since parents and communities are becoming actively involved in the education of their children. To insure cognitive growth and development of young children it will require a careful matching of parents' teaching style, children's previous learning experiences, and society's educational goals.

Background for the Study

This project was designed to study the process of parents teaching preschool age children using a direct observational method. That children differ in their abilities in "learning how to learn" by the time they reach school age has been documented dramatically, not only in controlled laboratory experiments, but also in the uncontrolled first grade classrooms across the country (Deutsch, 1964; Bereiter & Engelmann, 1966). Hunt (1961) has documented the concept that intelligence and indeed the ability to learn is a function of the dynamic interaction between the individual and the relative richness of his early environment. Strong support for this position is found in an evaluation of the data from longitudinal studies of the past four decades which asserts that as much intellectual growth is achieved between birth and four years of age as is achieved during the next 13 years--i.e., the total period of formal education (Bloom, 1964). Hunt contends that "if the manner in which encounters with the environment serve to foster the development of intellectual interest and capacity were more fully understood, it might be possible to increase the average level of intelligence within the population substantially" (Hunt, 1961, p. 346).

It is the family which mediates the early environment of the young child. However, as Hunt implies, there is a paucity of empirical data on the process by which parents facilitate or inhibit the learning of physical, cognitive and emotive skills which interact over time to result in relative competencies of individual children (Freeberg & Payne, 1967). Traditionally the environment of the preschool child has been explored through maternal report and interview (see Sears *et al.*, 1957, for a classic study and a frequently replicated methodology). This means of data collection, once removed from the interaction and possibly distorted by parental memory and expectations, has been challenged vigorously anew (Pyles *et al.* first reported on the questionable accuracy of mothers' reports in 1935.) More recently, Harris, Wolf & Baer (1964) and Scott, Burton & Yarrow (1967) have demonstrated that when a young child's behavior is modified experimentally in a preschool setting, teachers uninformed about the experiment have been unaware of these changes in behavior--even when the teachers themselves were reporting the observational data which reflected the changes. Yarrow, Campbell & Burton (1968) have issued the strongest methodological

challenge--failure to replicate the findings of maternal interview studies. They raise the basic issue of whether verbal report data are a reliable basis for studying parent-child interactions. These authors conclude that we have passed through a period of global assessment which initiated the scientific study of child-rearing and that it is time now for the refinement of materials and procedures.

The very complexities of life within the family necessitate that parent-child interaction be delimited and simplified for the purposes of research. It is when the parent functions in the role of teacher, rather than nurse or cook or chauffeur, that he maximizes the possibility for intellectual growth in his child (Patterson et al., 1963; Stevenson et al., 1963; Steward, 1965). We know that the simple provision of random experiences is not sufficient for intellectual growth. Experiences must be structured, labeled and the relevant cues pointed out (Deutsch & Deutsch, 1968). Even an enriched environment, complete with adult attention, is not in itself sufficient for stimulating new learning. Blank & Solomon (1968) report: "Exposure to materials, a school-like situation, and an interested adult [are] not sufficient for learning. Both mastery and enthusiasm for learning will come only when the child can be shown how to become actively involved in the learning process" (p. 388). Hess & Shipman have said (1968): "The meaning of deprivation [seems to be] a deprivation of meaning in the early cognitive relationships between mother and child."

The parent, because of his continuous interaction with his child, is able to put new experiences in the context of previous ones. In other words, he can help the child make sense out of the world. This research will be an effort to sample how parents do this. Instrumentation will be used to observe the actual process by the parent of teaching children, as well as the parent-child interactions which contain that process.

Considerable new research has focused on observing teaching-learning functions in parent-child interactions. Hess & Shipman (1965, 1968) report on a series of studies focused on groups of black mothers and their children from four different social-class levels, in an attempt to understand the variations in the cognitive experiences of the children. These are not investigations of level of mental performance of mother or child. They are rather an inquiry into the different styles or strategies of information processing which a young child develops as he interacts with his mother. This same focus on the maneuvers used by teachers to control or regulate the child is studied widely by teacher educators (e.g., Joyce & Harootunian, 1968).

Hess and his colleagues have found, through analysis of their observational records of the mothers' teaching behavior in a semi-structured laboratory setting, that maternal behaviors are as useful or better than IQ or social-class criteria in predicting the child's cognitive behavior. They characterized the teaching technique of lower-class mothers as giving instructions or help in completing the immediate task without generalizing the application, while the higher social-class mothers attempted to facilitate the child's learning to decide between alternatives.

Bee, Van Egeren, Streissguth, Nyman & Leckie (1969) replicated the Hess study with mother-child pairs drawn from the "highly educated white middle class" and from lower-class black and white families. Data from the observation of the problem-solving interactions indicated significant social-class and racial differences. The middle-class mother gave her child more time to think, made fewer specific suggestions to the child, and told him when he was right rather than wrong. The lower-class mothers were more intrusive in nonverbal ways in an attempt to help their children to a correct solution. The lower-class mothers did not behave in ways that would encourage the child to attend to basic features of the problem, and they seldom required a response from the child. "Such a child may learn a good deal about what not to do or at least about global rules of conduct, but he may not be well equipped with language tools or learning sets required for a systematic approach to the analysis of problems." Lower-class black mothers differed from both lower- and middle-class white mothers by giving less positive feedback, asking fewer questions and spending less time with their children in problem-solving tasks.

These findings suggest that in the proposed study ethnic and social-class membership be sampled. Mexican-Americans represent a very large ethnic group, particularly in the southwestern part of the United States. Although they experience a disproportionate share of learning problems (Rosenblatt, 1968; Ortega, 1971), there has been relatively little research data available to help interpret this. On the other hand, Chinese-Americans, as an ethnic subgroup, have fewer school dropouts, higher educational achievement, and send a larger proportion of their children to college than even the white middle-class population (Meadow, 1971). Therefore, in this study ?Anglo-, Mexican- and Chinese-American subjects will be used.

The replication by Bee (1969) of the lower-class black teaching strategies, in combination with the differential data from lower-class whites, strongly supports a fuller exploration of the many subgroups which compose the lower and middle classes. Socioeconomic class has often been

defined by sociological variables--e.g., occupation and education. Such variables assume a nuclear family structure. However, Mexican- and Chinese-Americans live primarily in extended family groupings. Furthermore, SEC, so defined, has limitations in informing social behavior among ethnic groups. Arnold Meadow (1971) states: "Recent investigations suggest that demographic categories such as 'the poor' or Mexican Americans are much too unrefined to account for major aspects of social behavior (Miller, S. M., 1965; Minuchin, S., 1967; Eckland, B. and Kent, D. P., 1969)." Brophy (1970) is even more specific. "Socioeconomic variables such as occupation, income, and education are associated with and in a statistical sense predict cultural disadvantage, but they do not identify mechanisms or cause-and-effect relationships linking home environment variables to cognitive development in children."

Acculturation status has been postulated as a discriminator of social behavior within ethnic groups (Meadow, 1971). Acculturation is a rich social concept referring to the distance a person or group is from the predominant socialization norm of a culture. Roger Brown (1965) describes socialization in terms of world view, morality and language. Of these, language is by far the easiest to operationalize and measure. In this study, language spoken by the Chinese- and Mexican-American mother to her child in the home was used as an acculturation index. Since American culture, including the public schools, is English-speaking, acculturation is deemed to be less as one moves through bilingualism to Spanish or Chinese only families. Because acculturation status, as defined by Meadow (1971) correlates positively with variables of age, education, place of birth, occupation of husband, and neighborhood type (Tharp & Meadow, 1968; Fishman & Terry, 1969), it was decided to use it to indicate social class for the Mexican- and Chinese-American populations.

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American public education, due to its white middle-class orientation, involves minority subgroups in a pluralistic setting. With the advance of social mobility in our country and integration in our schools, such pluralism is becoming more apparent for all children. Children are being taught by adults from ethnic groups other than their own. A part of this study seeks to explore the pattern of interaction between mothers and children not their own from similar and different ethnic and social-class backgrounds. Because school statistics show that boys have a consistently higher percentage of school failure, school dropout, learning and reading disabilities than girls, this study will use Anglo-, Chinese- and Mexican-American mothers from middle and lower classes defined by acculturation as well as demographic variables to teach their young sons.

Although the studies mentioned above provide for observation of a variety of maternal behaviors, there is an implicit assumption that communication moves only from parent to child. However, communication theory asserts that the behavior displayed by one person in the presence of another may to some degree have been determined by the other, and may also have some impact on that other person. Furthermore, this reciprocity may be quite independent of any intention to have an effect or elicit a response (Wimberger & Kogan, 1968; Watzlawick et al., 1967). For the purposes of this research, the teaching-learning event takes place whenever a learner interacts with a part of his world which has been structured for him by a teacher.

Analysis of the teaching behavior of the parent will be made using the Parent Interaction Code developed by Steward & Steward (1970) to structure the observation of dyadic interaction in which the parent initiates and maintains the teaching-learning situation and the child responds to these teaching maneuvers. (See Appendix A.) It is related conceptually to the Teacher Management Codes, an instrument developed for observation in the elementary classroom (Steward & Steward, 1969). Both instruments are a modification of selected codes which Kounin (1968) developed for observing regular classrooms in which emotionally disturbed children had been placed. The present codes were restructured from the dual perspectives of role theory and learning theory. The reciprocal role relationship of the teacher-learner, and the role expectations involved in the assymetrical relationship informed the development of the focus on the teacher as manager of the classroom and the parent as teacher in the home environment. Observable verbal and nonverbal teacher-student behaviors are analyzed in terms of four sequential components (cue, stimulus, response, reinforcement), reflecting the structure of social learning theory (Dollard & Miller, 1950).

The components of the interaction coded include: (1) alerting--gaining the attention of the child; (2) format--providing a structure within which the child may respond; (3) child's response to alert and format; (4) feedback--parents' response to the child's response. The completion of this sequence is termed a teaching loop. The coding procedure involves both a content analysis, defined by the specific description of the behavior, and a functional analysis, defined by where in the loop sequence the behavior occurs. For example, at the beginning of a loop a mother may use several different techniques to alert her child. Singly or in combination she may call his name, shake his arm, hand him a prop, or even remain uncomfortably silent with her left eyebrow raised until the child gives her his full attention. However, shaking a child's arm or handing him a prop may be observed at a different point in the loop where it serves a

format function as a nonverbal instruction. The silent stare, at a different loop point, might be feedback and serve the function of effective negative reinforcement.

The authors are aware that observational research, the methodology which has provided the basic data in the understanding of the development of children, has been replete with problems; the training of the observer (Wright, 1960) and the maintenance of his ability to observe reliably (Patterson, 1968); the necessary a priori selection of some behaviors with resultant deletion and loss of other behaviors; the confounding of the natural interaction of the subjects by the very activity of the observer (Rosenthal, 1966). The new technology of videotape gives the researcher increased methodological control over these important problems. Videotape may be replayed again and again for purpose of training coders. It may be multiply coded to permit reliability checks and recoding if necessary. It freezes data into an atheoretical flow which makes possible the application of a variety of independent coding systems. Although problems of observer effect are not solved by videotape, the subject has the option to look at and refuse permission to use the data, thus alleviating some of the aversive aspects of being observed.

Methodology

Subjects

The original design called for 36 three-year-old Mexican-American (MA) boys and 36 three-year-old Anglo-American (AA) boys. Half of the children from each ethnic group were to be from middle-class homes; half from lower-class homes. Six mothers were to be selected to participate from each of the four cultural-economic populations, resulting in 72 children and 24 mothers. Each mother was to teach three children: her own; another child who shared the same ethnic and social class; and a third child who shared neither. This resulted in a 2 x 2 x 3 mixed factorial design, ethnic group by social class by relationship to mother.

The design was modified in two ways. First, for the Mexican-American groups, the social class dimension was reconceptualized into an acculturation dimension defined by the language spoken by the mother in the home. Thus the "middle-class" Mexican-American group consisted of mothers who spoke English only at home, and their children (MA_e); the "lower-class" MA group consisted of mothers who were bilingual in Spanish and English at home, and their children (MA_b). Second, three cells were added. In order to complete

the MA sequence, six mothers who spoke Spanish only at home, and their children, were added (MA_s). Due to the availability of special resources, 12 Chinese-American (CA) mothers and their children were added. Six of these mothers spoke English only (CA_e) and six spoke Chinese only (CA_c). One MA_e child and one MA_b child could not be taped due to scheduling. Therefore the final subject population included 88 children and 42 mothers from seven ethnic subgroups. (See Appendix B for discussion of "Process of Subject Selection.") There were 18 children in each of the middle and lower Anglo groups (AA_m and AA_l); 17 children in each of the MA_e and MA_b groups; and six children in each of the MA_s, CA_e and CA_c groups. Thus while the 2 x 2 x 3 design, ethnic group by social class/acculturation by relation to mother was retained, the data from the added cells permitted a one-way analysis of variance of the mother-own child pairs from all seven cells.

Procedure

Games. Each child was taught two games by a mother: a bean bag toss game designed to teach a new motor skill and a sorting game to teach discrimination of color, size and shape. The experimenter demonstrated the games to each mother individually, and then the mother taught her own child (in the case of MA_s, CA_e and CA_c), or her own child and two other children (in the case of AA_m, AA_l, MA_e and MA_b). The children in the latter case were assigned in random order. (See Appendix C for game instructions.) The mothers were free to teach the child in any manner they chose, and to spend as much time as they wanted on each game. Their interactions were recorded by Sony 1/2 inch CV series videotape equipment. On the basis of pilot data it was expected that each mother-child pair would spend 10 to 15 minutes on the task.

Setting. Videotaping was done in settings intended to be compatible with the mothers' subcultural experience. For example, all MA_s and CA_c mothers were taped in their own homes. The other mothers were taped either in their own home, in neighborhood schools or community centers, or in the home of a neighbor. As was expected, the gathering of data in natural settings resulted in a more informal process characterized by ethnic practices. For example, grandparents and siblings became a part of the data record from time to time, and replay of the tape with animated family discussion often followed the data collection.

Data processing. The videotape data were prepared for coding in two ways. First, the tape for each mother-child dyad was edited to begin with the mother's introduction of the games to the child, and to conclude with the end of the second

game. The edited tape excluded times when either the mother or the child left the field, for example to answer the door, or go to the bathroom. Second, during the editing, an auditory beep was added electronically in a sound-on-sound procedure to permit coding of 20-second intervals.

Training of coders. Coding was done by four students (two Anglo-Americans, one Chinese-American, and one Mexican-American) after they had obtained satisfactory inter-rater reliability with the authors. Mastery of the Parent Interaction Code involved 10-12 hours of training in a four-step procedure: (1) understanding of the concepts to be coded; (2) coding with the authors on a training tape; (3) coding independent of the authors; (4) refining and clarifying conceptualization with authors on a second series of training tapes. Inter-rater reliability was established in excess of .85 before a coder began work on the research data, and one mother-child dyad was coded by the author from each cell (except CA_C and MA_S) midway through the coding as a reliability check. Monitoring reliability maintenance in the Spanish and Chinese speaking cells was handled by randomly assigning a recoding of one of the six dyads to the ethnic coder.

Dependent variables. Two major types of variables were analyzed from the mother-child interactions observed. The first major type referred to the structure of the learning environment, what Sarason (1971) might label the "programmatic regularities." The first of these variables was total time spent in the teaching-learning interaction, defined by the number of 20-second intervals in the dyadic protocols for both games. Input, the second variable, was defined as the number of teaching loops initiated and completed by the mother. Pacing, the third variable, was defined as the result of the number of teaching loops divided by the number of intervals.

The second major type of variable involved the detailed examination of the components of the teaching loops defined in the Parent Interaction Code--what Brophy (1970) refers to as "the context of meaning within which [the child] is to understand the task." These are what Sarason (1971) might term the "behavioral regularities." Each of the following variables was analyzed in terms of frequency per loop. Alerting was coded into six behavioral categories, and a relative frequency was derived for total alerting. Format statements were coded into three independent categories: (1) Content. The instructions were identified as being either "original" (verbally identical to the instructions given the mother by the examiner) or "embroidered" (verbally or behaviorally different from the instructions given the mother).

(2) Strategy. The instructions were coded for verbal, nonverbal, or combined verbal and nonverbal delivery. If the instructions were verbal, the form--either question or statement--was coded. (3) Specificity. The instructions were coded for the amount of information about the task given. Instructions ranged from level 1 for orienting statements, through level 2 for information about either the object or the activity, to level 3 in which information is given about both the object and the activity. Child response was coded as accept, passive, ignore, reject, demand. Parent feedback was coded for both informational and affective content. Thus feedback following child response could be coded as positive-positive, positive-negative, negative-positive, or negative-negative. The first position indicated information about the accuracy of the child's response. The second position described the emotional content. An information only category was also coded.

Results

The results will be reported in two sections due to the rather unusual subject population and resulting research design. The first section will report results from seven ethnic subgroups, each composed of six mothers teaching their own children ("own child" section). The second section will report analysis of four subgroups (AA_m, AA_l, MA_e, MA_b). Mothers from these groups are included in the first section as they teach their own children. However, these mothers also taught two children other than their own ("social distance" section). Programmatic variables will be reported first; then results from the analysis of the teaching loops.

"Own child" analyses

The data analysis generally began with a one-way analysis of variance over seven cells, followed by trend analysis to test ethnic differences. Duncan's multiple range tests predicting significance at the .05 level were administered as a conservative means of analyzing individual cell comparisons. (See Table 1.)

Programmatic variables

Total time. A one-way analysis of variance showed that mothers from the seven subgroups did not differ significantly either in the total time they spent teaching their children ($F=1.56$, $p < .20$) or in the amount of time spent on each of the two games ($F=1.62$, $p < .20$).

TABLE 1

"Own child": results of Duncan's multiple-range tests on group means

Variables	AA_m	AA_l	MA_e	MA_b	MA_s	CA_e	CA_c
Programmatic							
Total Time**							
Sort-BB**							
Input	90e	88e	51bc	26a	41b	73d	58c
Sort-BB	19.1ab	19.1ab	10.3abc	7.2abc	-7.3c	2.7bc	27.5a
Pacing	4.2a	3.8ab	2.8bc	1.8c	3.0b	3.0b	3.7ab
Loop							
Format: Cont							
Original	.19c	.18c	.39b	.29bc	.57a	.20c	.28bc
Embroidery	.82b	.82b	.80b	.85b	.49a	.93b	.83b
Format: Stra							
Verbal	.89ab	.95b	.83ab	.98b	.74a	.97b	.92b
Nonverbal	.06b	.05b	.15ab	.01b	.27a	.02b	.08b
Combined**							
Questions	.31b	.32b	.66a	.27b	.09b	.70a	.22b
Statements	.58b	.63b	.18a	.81b	.65b	.27a	.70b
Format: Spec							
Level 1	.18c	.10abc	.04ab	.13bc	.07ab	.06ab	.03a
Level 2	.21b	.16b	.33b	.26b	.59a	.22b	.29b
Level 3	.52ab	.74b	.62b	.60b	.34a	.72b	.68b
Weighted	.72a	.88c	.85bc	.81abc	.76ab	.89c	.90c
Child Resp							
Accept	.62c	.61c	1.20a	1.05ab	.90abc	.80bc	.89abc
Passive	.14a	.19a	.00b	.04b	.03b	.01b	.02b
Ignore**							
Refuse**							
Demand	.08bc	.09bc	.03c	.25a	.13b	.11bc	.08bc
Feedback							
Positive	.09c	.04c	.10bc	.18abc	.05c	.27ab	.35a
Negative	.01c	.01c	.09bc	.25a	.19ab	.12bc	.08bc
Info	.36ab	.41ab	.30bc	.58a	.23bc	.27bc	.06c
Total	.45b	.46b	.50b	.93a	.45b	.67ab	.50b

* Means that share a common subscript are not significantly different. Significance level is set at p = .05.

** Analysis of variance not significant; therefore Duncan not used.

Input. The input (number of instructional loops) differed significantly ($F=3.91$, $p<.01$). A linear trend analysis predicting differences among the three ethnic groups was supported ($p<.01$). To clarify the direction of the ethnic differences, and to explore differences within ethnic groups, a Duncan test of multiple range was done. Anglos did not differ from one another and gave the largest number of instructional loops. Chinese gave the next largest number, though significantly fewer than the Anglos. CA_e gave significantly more loops than CA_c. MA mothers provided the fewest number of loops. MA_e were not significantly different from CA_c nor from MA_s. Both MA_b and MA_s were significantly lower than CA_c. MA_b were significantly lower than MA_s.

Analyses were done to find out whether the number of instructional loops differed between games. A difference score was computed by subtracting the loops of the bean bag game from the loops of the sort game. This difference score was analyzed in a one-way analysis of variance ($F=4.81$, $p<.005$). Three trend comparisons were made. One demonstrated that Anglos were significantly different from MA ($F=5.06$, $p<.05$); the second showed a significant difference between the two Chinese cells ($F=6.41$, $p<.025$); the third predicted a trend within MA groups with $MA_e > MA_b > MA_s$, but this was not supported ($F=2.69$, $p<.10$). A Duncan test showed that CA_c spent significantly more time on the sort game than did the CA_e, and that Anglos spent more time than MA.

Pacing. The analysis of pacing, the number of instructional loops given per unit, showed a pattern similar to that of input. A one-way analysis of variance showed that mothers differed significantly ($F=4.59$, $p<.005$). The linear trend analysis predicting differences among the ethnic groups was supported ($p<.001$). A Duncan showed that AA_m were significantly faster paced than all MA mothers and CA_e. MA_b were significantly slower than AA, CA, and MA_s.

Loop variables

The teaching loop, consisting of alert, format, child response and feedback, served as the basic unit of analysis. All computations reported below were made on a per loop basis. Data from both games were combined.

Alerts were coded for all mothers. Results will not be discussed here for the nature of the dyadic teaching interaction, unlike the classroom setting, eliminated the necessity for ongoing alerting cues. Cues generally accented only the transition from one task to another.

Format. Instructional statements were analyzed in three ways: content, strategy and specificity.

Content. Content was collapsed from the several options in the code into two large categories: original and embroidered instructions. This was done because of time limitations, and difficulty with inter-rater reliability within the subcategories. Analysis of variance of the per loop occurrence of original instructions was significant ($F=6.26$, $p<.001$). A trend analysis predicting MA to be different from both CA and AA was supported ($p<.001$). A Duncan revealed that MA_s used significantly more original instructions than any other group, and that MA_e used significantly more than AA and CA_e. Analysis of variance of the per loop embroidered instructions indicated differential usage ($F=10.46$, $p<.001$). A Duncan revealed that MA_s used significantly less embroidery than any of the other groups.

Strategy. Instructions were coded as verbal, nonverbal, or a combination of verbal and nonverbal. Verbal instructions were analyzed further into question or statement categories. Analysis of variance of verbal instructions revealed a significant difference ($F=2.61$, $p<.05$). A Duncan showed MA_s to be significantly less verbal than AA_1, MA_b, and both CA cells. There were no differences within AA or CA groups. Analysis of the nonverbal data indicated a significant difference ($F=3.12$, $p<.025$). A Duncan showed the nonverbal data to be a nearly perfect reciprocal of the verbal data. MA_s have significantly more nonverbal instructions than any other cell except MA_e. MA_e is not significantly different from any of the other cells. The use of combined verbal and nonverbal instructions did not vary significantly among the seven subgroups ($F=1.36$, $p<.20$). Questions and statements were used differentially ($F=6.82$, $p<.001$ and $F=5.47$, $p<.001$, respectively). A Duncan showed that MA_e and CA_e used more questions and fewer statements per loop than any of the other groups.

Specificity. Analyses of variance were done on each level of specificity and on a combined weighted score. All were significant: Level 1 ($F=3.11$, $p<.025$); level 2 ($F=4.49$, $p<.005$); level 3 ($F=4.05$, $p<.005$); weighted ($F=5.26$, $p<.001$). Duncans on each of the levels revealed the following differences within ethnic groups. AA mothers differed from each other only on the weighted score, reflecting AA_1 greater specificity. No differences were revealed between CA_e and CA_c. MA_s differed from MA_e and MA_b by employing more level 2 and less level 3 instructions. Across the entire analysis, AA_m used more level 1 than MA_e, MA_s, and both CA cells. CA_c had significantly less level 1 than MA_b. MA_s used more level 2 than any other cell. MA_s had less level 3 than any other cell except AA_m.

Child response. Five categories of child response were coded. Only three were observed with enough frequency to permit confidence in data analysis. Child response A (accept) was differentially given at a significant level ($F=4.52$, $p \leq .005$). A trend analysis predicting ethnic differences was supported ($p < .001$). A Duncan confirmed the trend analysis showing that the two AA groups gave significantly less A responses than two of the MA groups (MA_e and MA_b). Child response B (passive) was differentially given ($F=12.58$, $p < .001$). A Duncan showed both Anglo cells to have significantly more B responses than any other cell. Neither child response C (ignore) nor D (refuse) was significant ($F=.738$ and 1.21, respectively). Child response E (demand) was differentially used ($F=16.26$, $p < .001$). A Duncan revealed significant differences within the MA group such that MA_b had more E responses than MA_s which had more than MA_e. There were no differences among AA and CA groups. Across all cells, MA_b differed from all cells with the most frequent use of E responses.

Feedback. Analyses of variance were computed on positive, negative, information only and total feedback. All reached acceptable levels of significance ($F=3.895$, $p < .005$; $F=5.79$, $p < .001$; $F=2.887$, $p < .025$; $F=2.711$, $p < .05$). A trend analysis on positive feedback predicting ethnic differences ($CA > MA > AA$) was supported ($p < .001$). A Duncan revealed more precisely that CA_c used significantly more positive reinforcement than both Anglos, MA_s and MA_e. CA_e used significantly more than both Anglos, and MA_s. Another trend analysis was performed on the negative data. The predicted trend of MA CA AA was supported ($p < .001$). A Duncan revealed MA_b used more negative reinforcement than any other cell except MA_s. MA_b and MA_s usee significantly more than either Anglo. No differences were noted within Chinese or within Anglo groups. Information feedback was used most frequently by MA_b and least frequently by CA_c. MA_b gave significantly more total feedback per loop than any other cell except CA_e.

"Social distance" analyses

These analyses were based on the results of four groups of five mothers (AA_m, AA_l, MA_e, MA_b), each of whom taught her own child, a child from the same ethnic and social class, and a child from a different ethnic and social class. Children were assigned to be taught in random order, and with two exceptions, were all taught in the same day. The own child data have been included in the report above, but will be repeated in this analysis in order to compare the mothers' teaching style with her own child to her style with other children. All variables were analyzed in a 2 x 2 x 3 mixed factorial design (ethnicity by social class by social distance from the mother).

The data anlysis of the programmatic variables in the "social distance" section parallel the findings from the "own child" analysis. Mothers did not differ significantly in the amount of time they spent teaching the children, or in the amount of time spent on each of the two games. The number of instructional loops initiated by Anglo mothers was significantly more than MA mothers ($F=10.75$, $df=1,16$, $p<.005$). Unlike the "own child" data, no differences were found in the study of the loops per game. Pacing yielded two main effects: Anglo mothers gave more loops per unit than MA ($F=32.24$, $df=1,16$, $p<.001$) and middle-class mothers gave more than lower-class ($F=7.47$, $df=1,16$, $p<.025$).

Format. Format was analyzed in three ways: content, strategy and specificity.

Content. Coding of original instructions supported the "own child" data with the finding that MA give more original instructions than AA ($F=16.65$, $df=1,16$, $p<.001$). By inspection it was seen that MA give less embroidery than AA.

Strategy. The verbal strategy was not differentially used by the four groups of mothers. When nonverbal strategy was analyzed, it revealed that middle-class mothers used significantly more than lower-class ($F=7.52$, $df=1,16$, $p<.025$). There were no differences in the use of combined verbal and nonverbal strategy. No significant main effects were found in the use of questions. However, a significant interaction between social class and ethnicity ($F=20.85$, $df=1,16$, $p<.001$) reflected that MA_e continued to use more questions than MA_b, while in the Anglo cells, AA_l used more than AA_m. A trend for all groups to increase the amount of questions with similar and different children was also noted ($F=3.20$, $df=2,32$, $p<.10$). A significant main effect of social class ($F=9.40$, $df=1,16$, $p<.01$) and an interaction between social class and ethnicity ($F=24.31$, $df=1,16$, $p<.001$) reflected the use of fewer statements by MA_e.

Specificity. AA_m mothers used level 1 specificity more frequently than did other mothers. The significant main effects of social class ($F=6.44$, $df=1,16$, $p<.025$) and ethnicity ($F=20.82$, $df=1,16$, p .001) and their significant interaction ($F=15.71$, $df=1,16$, $p<.005$) were interpreted by applying the Duncan. AA_m used level 1 more frequently than all of the other groups. No differential use of specificity level 2 was found. A significant ethnicity by social class difference ($F=6.49$, $df=1,16$, $p<.025$) picked up the lack of use of level 3 by AA_m mothers. However, an interesting social class by social distance interaction showed that independent of absolute usage, middle-class mothers, AA_m and MA_e, either maintained the same level of specificity or increased usage

of level 3 with children other than their own. Lower-class mothers, AA_l and MA_b, decreased the usage of level 3 with children other than their own. The weighted score, as a single reflection of level of specificity, supported the ethnicity distinction ($F=5.37$, $df=1,16$, $p<.05$) with Anglos having a lower specificity than MA. The interaction of ethnicity by social class indicated that within ethnicity there were conflicting trends such that MA_e and AA_l had higher specificity than MA_b and AA_m. The weighted score paralleled the interaction of social class by social distance found in level 3 ($F=6.35$, $df=2,32$, $p<.005$). Middle-class mothers increase specificity with children other than their own, while lower-class mothers either stay the same or decrease.

Child response. As with the "own child" data, child response was coded into five categories. The child response data can be understood from the perspective of social distance, focusing on the response of different children to the same teaching mother by using a 3 x 2 x 2 mixed factorial design. It is also possible to investigate how ethnically similar groups of children responded to their own and different mothers by using a 3 x 2 x 2 factorial design.

Accept. MA mothers elicited significantly more accept than AA mothers ($F=80.25$, $df=1,16$, $p<.001$). Within the ethnic groups, MA_e elicited more accept than MA_b and AA_l more than AA_m ($F=12.11$, $df=1,16$, $p<.005$). For the similar children's group two significant interactions were found, ethnicity by social class ($F=12.86$, $df=1,48$, $p<.005$) and ethnicity by mother ($F=42.26$, $df=2,48$, $p<.001$). MA_e children as a whole still gave the most accept responses. Next frequent usage was by AA_l. MA_b and AA_m used it equally. When AA children were with MA mothers, their frequency of accept went up significantly; when MA children were with AA mothers their accept responses went down.

Passive. Passive response was elicited most frequently by AA mothers ($F=37.40$, $df=1,16$, $p<.001$). The ethnicity by social class ($F=6.00$, $df=1,16$, $p<.05$), social distance ($F=4.15$, $df=2,32$, $p<.05$) and social distance by ethnicity by social class ($F=3.34$, $df=2,32$, $p<.05$) reflected the finding that MA_b and AA_m mothers elicited passive responses more frequently from children not their own than for their own children. This effect did not hold differentially for MA_e and AA_l mothers. Looking at the same data from ethnicity of the child, both MA groups of children increased passive responses when working with an AA mother while both AA groups of children decreased passive response when working with an MA mother.

Ignore and reject. Ignore was elicited most frequently by AA mothers ($F=20.05$, $df=1,16$, $p<.001$). Reject data were insufficiently observed to warrant reporting.

Demand. Demand response was elicited most frequently by the lower-class mothers ($F=9.75$, $df=1,16$, $p<.01$). A main effect for social distance was found ($F=4.85$, $df=2,32$, $p<.025$). The significant ethnic by social class interaction ($F=7.49$, $df=1,16$, $p<.025$) reflected the fact that MA_b received the most demand. The social distance by ethnicity by social class interaction ($F=3.95$, $df=2,32$, $p<.05$) reflected the fact that MA_b mothers got most demand from their own children.

Feedback. Feedback was analyzed in four categories: positive, negative, information, and total.

Positive. Ethnic and social class differences found in the "own child" data are supported in the social distance data ($F=5.20$, $df=1,16$, $p<.05$; and $F=5.75$, $df=1,16$, $p<.05$). More interesting is the finding that social distance is a significant main effect in the use of positive feedback ($F=11.89$, $df=2,32$, $p<.005$). The social distance by ethnicity ($F=5.03$, $df=2,32$, p .025), social distance by class ($F=4.84$, $df=2,32$, $p<.025$), and social distance by ethnicity by social class ($F=5.79$, $df=2,32$, $p<.01$) reflected the fact that mothers gave more positive reinforcement to other children than to their own. This was especially true of AA_m and MA_b mothers.

Negative. Negative feedback was used significantly more by lower-class mothers ($F=45.52$, $df=1,16$, $p<.001$), by MA mothers ($F=9.35$, $df=1,16$, $p<.01$), and especially by MA_b mothers ($F=9.78$, $df=1,16$, $p<.01$). A trend was noted in the social distance variable ($p<.10$) such that MA_b mothers tended to decrease the amount of negative feedback given children other than their own. AA mothers used essentially no negative feedback with their own or other children.

Information. Information was used more frequently as a feedback by lower-class mothers ($F=23.52$, $df=1,16$, $p<.001$).

When the total amount of feedback per loop (positive plus negative plus information) was examined a main effect for ethnicity ($F=19.28$, $df=1,16$, $p<.001$), social class ($F=23.72$, $df=1,16$, $p<.001$), and an ethnicity by social-class interaction was found ($F=8.40$, $df=1,16$, $p<.025$). This reflected the fact that MA_b mothers used the most total feedback, AA_l was similar to MA_e, and AA_m used least of all.

Pattern Analysis

The relationship between the mothers teaching strategies, child response, and maternal feedback was explored by employing a contingency analysis developed by Bobbitt et al.

(1969). Their concept of pattern is defined as a set of one or more behavioral events occurring together during an interval. In these data the interval was defined as the teaching loop. For each set of behaviors presented below, a 2 x 2 chi square test of independence was conducted between mother behavior and child behavior for each mother-child pair. Each test yielded a chi square value reflecting the contingency for that pair. The square root of this value, chi, was determined. The chi value for each mother-child pair in the group was then given a positive sign if the joint occurrence exceeded expectation and a minus sign if below. Next, to determine whether the contingency was characteristic of the group, the chi's for the group of subjects were summed algebraically and the sum examined for significance (since chi equals z for 1 degree of freedom) with $p < .05$ considered to indicate a relationship.

The mother-child patterns reported below were selected from a large number of possible patterns rather than being an exhaustive search as the data were hand analyzed. The findings appear both informative and provocative and a more complete analysis is planned before publication.

Specificity and child response. Three pairs of mother-child behaviors were investigated: specificity 1 and A; specificity 1 and B; E and specificity 3 in the next loop.

Specificity 1 and A. It was predicted that given an instructional statement at the most general level of specificity, it would not be followed by active participation on the part of the child in the games. This prediction held for AA mothers with their own and other children, and for CA_e mothers and their own children. It was not found with the MA and CA_c "own child" data, and only in the MA_b with the similar child.

Specificity 1 and B. It was predicted that when a mother gave an instruction at level 1, it would be followed by a passive response on the part of the child. This interaction was examined in the AA and MA data. The relationship held for AA mothers with their own and other children. It held only in the MA group for the MA_b mother with similar child.

E and specificity 3. The relationships between a child demand for help on the games and the level of specificity of the next instructional loop were examined, with the prediction that the next loop would contain the highly specific level 3 instruction. This relationship examined in the "own child" data held for the two lower-class groups, AA_1 and MA_b, and for CA_e mothers, but this strategy did not

hold for the other four groups of mothers. However, for the CA_e mothers the relationship was in the opposite direction, i.e., they used level 3 instructions following a demand significantly less frequently than would be expected.

Child response and feedback. Three pairs of mother-child behaviors were investigated: A and total feedback; A and negative feedback; E and total feedback.

A and total feedback. The child's active acceptance of the task was predicted to elicit feedback from the mother. This relationship held for every group of mothers in the "own child" data but the MA_s.

A and negative feedback. The relationship between the child's active acceptance of the task and a resulting negative feedback from the mother was examined in the MA data. This interaction was found for the MA_b with own child and similar child, but not for the MA_s group or the MA_b with different child.

E and total feedback. It was predicted that a child's demand for help would be met by some type of feedback on the part of the mother. This relationship was characteristic of the AA_m and AA_1 mothers with their own children, with the AA_1 and MA_e mothers with similar children, and with the MA_e and MA_b mothers and different children. However, demand was followed by feedback significantly less frequently than would be expected for the CA_e pairs, the MA_b mothers with their own and similar children.

Discussion

Values and methodology

This particular research project is the integrated expression of two rather independent sources, one professional, the other personal, and both need to be kept in mind in our interpretation of the data. First, as professionals interested in early childhood education and more explicitly in the components of the teaching-learning process, this project was a natural extension of our earlier observational work with teachers and classrooms in the public school system, and of the recent stimulating work of colleagues in the field of child development. Lorge (1967) has stated that "no observation can be made unless man has arrived at some concept of it." Thus the research and theoretical literature provided a conceptual base which permitted us to observe. A clarity of concept, and the resulting operational definition, permitted us not only to observe, but to observe reliably. Second, as participating teaching parents for three years in preschool and then in Follow Through, in a multi-ethnic setting--the first year we had children from six major language groups--we had a clinical feel both for the subtle changes in our own interactions with children, and shared the experiences of our "parent colleagues" who, many for the first time, were involved in working with children different from their own. The front line experience has given us an appreciation for the wide range of young children's natural behavior, the complexity and intensely demanding nature of teaching young children, and the marvel of the interaction process when the teacher successfully structures the environment in such a way that the child does indeed learn.

However, we are nonetheless white, middle-class social scientists, and our values inform our work. Sroufe (1970) has protested "that study by middle class social scientists may move us further from the solution of some problems." Our concern is the fine-grained and careful exploration of that interactive process which can facilitate for a child new learnings. Lidz (1963) has pointed out that every child has two basic endowments, a physical one and a cultural one. More specifically, the child is born with a physical endowment, and into a cultural one, and in each he participates in experiences of continuity and uniqueness. Bee (1970) has noted that "the success of education for any given child is a joint function of the characteristics he brings with him, and the style or techniques with which he is being taught." It is the cultural experiences--or rather

the experiences of learning within a cultural context which the child "brings with him" into the classroom that we have begun to explore.

Maternal Teaching Styles

It is clear that the young children in this study have experienced different early learning environments, some subtle, such as the pacing of instruction, others less so, such as the distinctive usage of affect-laden feedback. The result of these experiences will be different expectations and skills brought by children to the classroom. Perhaps the most striking result of this research is the confirmation again that no simple variable or even cluster of simple variables suffice in the comparison of something so complex as teaching-learning interactions. Although there are fascinating differences among ethnic subgroups along the variables coded, there is no easily established pattern for the configuration of these variables according to social class or ethnicity. The picture rather tends to support stable constellations of behavior within ethnic groups. We agree with Hess's (1968) cautionary words. In ethnicity as in social class, there is a translation between the category and the behavior. What we are reporting derives from recurrent behaviors observed in certain populations. Further research will be necessary to bring the behaviors and the concept into more confident relationship.

As teaching-learning interaction involves role identification, it may be of use to share the informal data which we have collected about the mothers perceptions of themselves as teachers. Our experience with them in and around the research project provided time to talk with them about their children, education, and teaching. It was apparent that the Chinese mother considered teaching to be an important component of her maternal role, and regular formal instruction of her preschool age children took place in the home. Most frequently the Chinese mother was supervised in her teaching role by the resident grandmother. On the videotapes one can hear the grandmother's voice, with talk directed at the mother and her teaching techniques. The MA mother, in contrast, felt that she was the mother--not the teacher, indeed "the schools do that." With the extended family setting, the MA grandmothers also came within camera range, but not to critique the mother. The grandmothers in the MA home coached the child from the sidelines, and in one instance the grandmother actually intervened to complete the task for the child. Once also, our MA team member interrupted a mother and began demonstrating the game to the child. The focus was on getting the job done! Kindergarten teachers who have worked extensively with both Chinese and Mexican children

reported that typically at the beginning of the year the Chinese mother leaves instructions that she is to be called if the child does not learn, and the Mexican mother wants to be called if her child does not behave. The AA mother, living only within the nuclear family perceives her many roles and goes about them, supervised only by such teachers as Sesame Street.

As teachers, the middle-class Anglo mothers looked "just like the book said." In other words, we saw a confirmation of the style which Brophy termed "proactive teaching" in which the mother spent more time in careful set-up, gave a rich embroidery of the adult instructions and used feedback directed in the form of information to the child about his performance. The high number of completed teaching loops and the fast pacing give additional confirmation that there was smooth movement between parent and child in the teaching-learning interaction. The surprise in the Anglo data was the general similarity of the lower- and middle-class Anglos. It may be that our population is not sufficiently "lower class" to compare it with the Chicago or Washington data. The one striking social class difference came to our attention both statistically and from the complaints of our coder, i.e., the high usage of level 3 specificity by the lower-class Anglos. Many of the mothers developed subroutines of a highly specific nature which often left the coders (and probably the children) wondering what part of the game was being taught.

The English-speaking Chinese mothers shared many stylistic features with the Anglo mothers, i.e., input, embroidery. The enthusiastic positive feedback appeared to be a characteristic Chinese response shared with the Chinese-speaking mothers. It is difficult to document with the magnitude data, without the luxury of an exhaustive sequential pattern analysis, the careful movement in specificity from level 1 to level 2 to level 3 which we observed in both groups of Chinese mothers. The contingency data provide some support for our understanding of their flexibility to move back when they perceived the child could not comply with an instruction because he did not understand the components of it. The English-speaking Chinese mothers also shared an interesting pattern with the English-speaking Mexican mothers--a high proportion of questions to statements. The Chinese-speaking mothers shared some features with the bilingual and Spanish-speaking mothers, i.e., a lower number of teaching loops, and a higher proportion of statements to questions.

The Mexican mothers provide enough intrigue to keep cross-cultural researchers and educators busy for some time to come. There are many striking acculturation reflections; in the differential time spent on the cognitive over the

motor skill game, the significant usage of nonverbal instructions on the part of the MA_e and MA_s mothers (and the striking omission of nonverbal instructions by the bilingual mothers) and the high percentage of original instructions. The bilingual mother appears to be the most "reactive" of the maternal groups, to use the Brophy image. The number of instructional loops is the lowest, her child makes the most demand for more help, information or support, and she was involved in the longest loop sequences with the multiple corrections or clarifications necessary before she could proceed on to the next instruction.

The most important methodological step which we missed in the collection of the videotape data was the recording of the process by which each mother first learned the tasks which she later taught the child. The relationship between her learning style and her subsequent teaching style may give us important clues.

Children's Responses

Bell (1971) has noted that there has been little research data on the stimulus value of the child's behavior as an elicitor of parental response, although the theoretical literature on parent-child relationships has acknowledged dyadic social units, reciprocal role relations, and the dual function of a behavior both as a response and a stimulus. He identified the difficulty as a lack of conceptual sequences such that both parent and child behavior can be identified. In this research the child's response, conceptualized within the instructional loop, served as both a differential response to a particular maternal teaching style and, as the contingency analyses demonstrated, a stimulus to which mothers modified their own behavior.

Our data indicate that, as with the maternal teaching data, the single best predictor of how a child will respond was the information about his ethnic group membership. This held true if the child was with his own mother or with another mother from his ethnic group. However, if the child's teacher was not from his own group, it immediately became important in understanding the interaction to know both his ethnic group membership and the mother's.

The strikingly high acceptance rate of the MA children, and to a lesser extent the CA children with their own mothers, is in marked contrast to the response variability of the AA children. LeVine (1970) has recently reviewed a large number of cross-cultural studies of children's cognitive development, and at least three important factors relevant to the interpretation of our data. First,

differential social expectations within a cultural environment for obedience and compliance on the part of the child in the presence of an adult generalized to the child's behavior in a learning setting. Second, unthinking obedience and passive learning styles often resulted in the inhibition of cognitive performance or a depression of scores below the level of populations which foster active mastery of a task. Third, instructional factors appear to have an independent effect of major proportions on facilitating the development to qualitatively different levels of cognition. For both the MA and CA child, the expectation of obedience and respect of elders is culturally demanded, and this expectation has obviously generalized to the learning setting. The Anglo children currently are experiencing a relative freedom in the child-centered culture. However, the CA children do extremely well in later school tasks, and the MA extremely poorly. What is there to account for this differential result of obedience?

The learning literature suggests that the acceptance of a single strategy (Silverman & Shapiro, 1970) or the inability to "win-stay, lose-shift" on concept acquisition tasks is frequently found with lower-class children and is understood to be a function of random or chaotic reinforcement. Bresnahan (1971) has demonstrated that by experimentally increasing the amount of random reinforcement given a child she can depress his performance significantly. Several researchers in probability learning have demonstrated that when instructions lead the subject to think that he is dealing with a random sequence of events, or when the maximization of overall performance is stressed, "overshooting" is observed (Edwards, 1961; Peterson & Ulehla, 1965).

The reinforcement experience of the CA and MA children is markedly different in this study. The CA mothers used significantly more positive feedback than the MA or AA mothers, approximately once every third loop, and it was contingent upon the child's accepting responses. MA mothers in contrast used more negative feedback than CA or AA mothers, and it was strangely contingent upon accepting responses--for the bilingual mother--an experience which must at best be confusing, and which probably supports the single strategy response because of the experience of randomness.

Fascinating shifts in the child's typical response strategy are found in the social distance data. There it was found that the AA child tightened up his response variability and began behaving with the MA mother with a much higher proportion of accepting responses--similar in fact to her own child. The MA child, on the other hand, appeared to relax his vigilance and open up his response repertoire to a wider variety of responses. In a recent study focusing on

the skill of a mother in eliciting obedience from her own and other children, Landauer, Carlsmith & Lepper (1970) found that children obeyed their own mothers much less than they did mothers of other children, and that adult females were not consistently able to evoke obedience from children. Although the authors do not state the ethnic or social class of their subjects, from our data we might suggest that this finding probably would not hold for minority parents. Surely, for the component of obedience which is in the active acceptance of the child's response on our learning tasks, MA mothers were able to elicit such from their own and other children, and MA children gave considerably more response variability to mothers other than their own. It is of consequence to note that all mothers were significantly nicer to children other than their own. The MA mothers continued to use more negative feedback than the AA mothers, although it was contingent on non-accepting responses only with the AA children. In other words, the similar CA child got the same randomly contingent negative feedback that the mother's own child received.

A demand on the part of the child for help on the task elicited two different strategies from the two ethnic groups also. The MA mother typically did not follow this with feedback, but with an instruction of increased specificity on the next loop. However, the CA mother followed a demand with a movement up to a more general level of orientation. For example, the instruction "put the blue ones in here" might be followed by a repeat instruction, with intensity in the voice and manner from the MA mother, but would more likely be followed by a check such as "Is this a blue one?" or "What color is this?" from the CA.

Implications for Early Education

There are important value issues raised by implementation of day care programs, parent-participation preschools such as Head Start and Follow Through, and the various other interventions or complements to the early mother-child relationship which focus on enhancing cognitive development. As Bronfenbrenner (1969) has pointed out, young children learn best from those near them. However, simple parental interest, or nonspecific parental involvement with the child, is not sufficient to promote cognitive growth, as the Nelder (1971) study has shown with bilingual children. Merely shifting the scene of the parent-child interaction from home to school does not necessarily generate change. Hess (1968) has pointed out that our society has moved into the business of early education, and that in terms of young children early education means essentially early socialization. "When the process of education--or the technique of socialization is

institutionalized through the school, however, the community through some form of government, assumes responsibility, often in a direct way and without necessarily involving the parents in the planning."

However, all of the mothers in our study, regardless of their own identification with the teaching role, were uniformly concerned about the education of their children. The middle-class mothers were more attuned to concepts of early education, environmental enrichment and their role in guaranteeing quality in education. The lower-class mothers, particularly of minority groups, were more concerned to exert pressure on the schools to modify. In some cases this represented a first generational self and ethnic awareness of their potential influence on actual programs and teachers.

If the communities are to be involved, realistic programs in early childhood education will have to deal with pluralistic patterns of both teaching and learning. Mothers, and other relatives who participate, will bring with them the constellation of strategies and techniques they have used and learned. Both the social distance replications of this study and the authors' work with experienced teachers (cf. Steward & Steward, 1970) indicate great stability in teacher style irrespective of who the learner is or where he is taught. There is little chance that parents could be "retrained" to be teachers more compatible with any given norm even if this were desirable. Because of this effective integration of family and school educative resources will require careful matching of parents' teaching style, children's learning experience, and society's educational goals.

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APPENDIX A

PARENT INTERACTION CODE

This code is used to structure observations of the way in which a parent initiates and maintains teaching-learning situations, and of the way in which a child responds to these maneuvers. The components of the interaction include (1) alerting--gaining attention of child; (2) format--providing a structure within which the student may respond; (3) child's response to alert and format; (4) feedback--parent's response to the child's response.

I. ALERTING

The ways in which a parent gains the attention of the child for the learning activity is called alerting. This involves behavioral cues, even when unique to the individual parent, which have the effect of alerting the child in order to involve him in the task.

To code: Identify and describe each cue as it is observed. Use the same identifying mark for subsequent observations (cf. "game protocol").

e.g., A_e eye contact
A_n repeat child's name

II. FORMAT

When teaching, P provides the structure within which the child responds. The set-up the P provides for the teaching-learning interaction includes P's presentation of the rules, teaching strategy and teaching specificity. Every instruction given by P is to be coded in three ways:

A. Content

Under content are coded the rules P gives to the child. Rules which are identical to those given to P when she was taught the game are coded as "original"; those which involve elaborations of the original instructions are coded as "embroidery."

1. Original: When instructions are those given to P, code O_1, O_2, etc. (cf. "game protocol").

2. Embroidery: When instructions are different from those given to P, identify and describe each instruction as it is observed; code E_1, E_2, etc. (cf. "game protocol").

B. Strategy

Strategy refers to the device by means of which P gets the child into the teaching-learning situation.

1. Statement: A statement indicating what the P wants the child to do--e.g., "Put the blue ones in a pile."

2. Question: Instruction, as above, but stated in interrogative form--e.g., "Where do the blue ones go?"

3. Nonverbal: Manipulating props or otherwise demonstrating to the child how he should proceed. (May be coded simultaneously with statement or question.)

C. Specificity

Specificity refers to how much information P gives about the task and its solution.

1. Level 1: Orienting suggestions, focusing strategies, suggestions that restrict the attention to some major segment of task--e.g., "Let's begin by finding where to stand."

2. Level 2: Information about either objects to be used or activities to be done, but not both--e.g., "Use the blue ones."

3. Level 3: Information indicating both objects to be used and activities to be done---e.g., "Put the blue ones in this box."

III. CHILD RESPONSE

The child may respond to P's teaching strategies in a variety of ways, and these responses may have a verbal and a behavioral component.

A. Accept: Active acceptance of control, suggestion or question/statement from the P.

B. Passive: Attending, but no overt behavioral change in response to P's statements.

C. Ignores: Ignores P's attempts at control, suggestion or question and continues with earlier behavior.

D. Rejects: Rejects P's control, suggestion or question/ statement.

E. Demand: A bid for help, attention or approval. Demanding an action from the P.

IV. PARENT FEEDBACK

P gives a response to a child's performance which has the possibility of carrying both information about the performance and an emotional quality. This may be communicated verbally, e.g., "Great, you got it right," or nonverbally, e.g., a smile, stern look, etc.

1. Reward: Positive information directed toward the child about his performance, accompanied by affect.

   a. Affect positive: "Great, you got it right."
   b. Affect negative: "That's correct, are you sure you didn't copy that from Jimmy?"

2. Punishment: Negative information directed toward the child about his performance accompanied by affect.

   a. Affect positive: "You missed it, but that's all right."
   b. Affect negative: "Did you miss another one, Harry?" (Accompanied by a frown from P)

3. Information only: Positive or negative information about the correctness of child's response with no affect noted. E.g., "OK"; "That's the wrong page."

V. GAME PROTOCOL FOR SORTING AND BEAN BAG

Coding Cues

To code, select the proper category and record its number or letter. The first time a new embroidery is used, note it at the top of the column.

Alerting

1. Child's name
2. Voice
3. Eye contact
4. Body contact
5. Gesture
6. Prop manipulation

Content

Original Instructions

1.	Color)	
2.	Size)	Sorting Game
3.	Shape)	
4.	Box (pile))	
5.	One step)	
6.	Two steps)	
7.	One hand)	Bean Bag Game
8.	Other hand)	
9.	Both hands)	
10.	Bucket)	

Embroidery

a. Pronoun (it, here, etc.)
b. Label (red, square, etc.)
c. Analogy (round like the clock, jump back like a rabbit)
d. Location (in front of, beside, etc.)

APPENDIX B

PROCESS OF SUBJECT SELECTION

The selection of subjects is always a complicated process. Typically, it involves constraints of project design and availability of population. This research reflected both of these constraints, and presented another: the complex constellation of problems arising out of securing subjects with growing ethnic awareness in a pluralistic culture. Appendix B describes the process of subject selection and recruitment which became the most time-consuming and make-shift feature of this research.

There were three steps in the recruitment of subjects: finding the population, interpreting the project, scheduling and taping.

1. Finding the population. Each cell presented its own set of problems. The middle-income Anglo cell was, expectably, the easiest to find. Calls to a few friends, church schools and day nurseries gave us more than enough eager volunteers. A similar approach worked with the lower Anglo cell. Cooperation of public and private nursery programs and churches in depressed neighborhoods was enlisted. Their information was used to contact parents in order to check occupation of father and begin recruiting.

The MA bilingual and Spanish-only cells were much more difficult to find. A survey of Berkeley, Oakland and Richmond day care centers indicated almost no MA users. It soon became apparent that MA mothers of three-year-olds felt strongly that their youngsters were "too young for school." Because of the extended family, there was either someone at home for child care, or a nearby relative. Some entree was required into the families of the community.

The first effort was contact through the church. Although the Roman Catholic Church wields a powerful influence on many adults in the MA community, its program in Berkeley did not include nursery rolls. With the help of an MA parent with whom the researchers taught in cooperative preschool, an invitation was given to attend a Wednesday night Novena which had met for twenty years, and which represented some of the strong matriarchal leadership of the community. Through this group several "leads" were given. The parent who introduced the researchers to the Novena joined the research team to contact Spanish-only mothers and to help generally to gain access to the community.

At the same time, the researchers were introduced to the Centro Cultural Mejicano Latin de Berkeley, which is a social and political focal point for the Spanish-speaking community. A growing ethnic self-awareness had given this center an appeal and critical focus especially on matters of education of MA children. They provided other subject "leads" and also permitted the use of their center for videotape.

Despite carefully developed and cordial relations with these groups, not enough bilingual and Spanish-only children were found. Resources around Sacramento were probed. People from two school districts were contacted, based on the services one of the researchers had given through talks, workshops, etc., in the area of child development. Teachers at public schools, parent cooperative nurseries and Headstart programs "remembered" siblings. A public health nurse gave leads from her home contacts. Throughout, an informal worl-of-mouth chain was required.

The English-only MA cell produced a problem all its own. The acculturation process appears to have been massively destructive of ethnic identification. Most English-only MA families lived according to the family pattern of upper middle-class Anglos. They were not part of an extended family and were not particularly eager to be identified with the MA community. Particularly apparent was their concern not to be identified with persons who speak Spanish. Personal contact was even more important here. It became necessary to use MA mothers, even if they were married to Anglos. This was the most difficult cell to find.

Both Chinese cells were filled easily by the Chinese-American researcher who comes from a large extended family and whose father owns an active community liquor store. In the case of the Chinese (and to a lesser extent, the MA bilingual and Spanish-only), many children from extended families (not siblings, but cousins) were used.

2. Interpreting the project. There was little difficulty in gaining the cooperation of parents who were oriented to the white middle-class point of view. Both Anglo cells could understand easily the value of research such as this for their children. They trusted the effort. English-only MA parents were sufficiently acculturated to approve the research easily as well.

As was mentioned above, Chinese-American parents were approached and recruited easily, probably because the contacting researcher was a member of a prominent part of a large extended family of which many of them were a part. There was general eagerness on the part of Chinese mothers for their children to perform in an educational setting

which the subculture values. The Spanish-only MA mothers were also universally gracious, again probably due to the mediation of the researcher who was a member of their own group.

Bilingual MA mothers were neither passive nor uncritical. These parents had enough ethnic identity to be thoroughly aware of the exploitation of their subgroup and had a militancy which required the researchers to validate their project carefully. It was not the case that they rejected efforts to improve education. But there was a very healthy suspicion of the "science" which had prepared and used culturally-biased tests to place their children in classes for the mentally retarded. They insisted on knowing precisely how the research could help them. They would risk the intrusiveness of research only if they could become convinced that they would not be exploited. Careful explanations about the need for observational data were made at the "Latino Center." Some parents probed the team's willingness to replay the taped interaction for them to see before giving their approval for its use. (This was, in all cases, a standing offer.) Throughout this recruiting experience, the researchers found that candor and careful presentation of goals and expectations as well as the limits of the research evoked appreciation and participation.

3. Scheduling and taping. Arrangements for taping were made and carried through with incredible ease, once the parents agreed to participate. There were, of course, cancellations due to illness, etc., but there was no experience of ennui or "forgetting" as many researchers have encountered with non-middle-class populations. Taping was done either at a familiar center (e.g., "Latino Center," neighborhood preschool) or in the home of the teaching mother. Many parents made special efforts to gather at the appointed time and place so that one mother could be taped with three children in sequence. In most cases, the research team was prepared to provide transportation.

The taping settings reflected the normal home teaching situation for most of the mothers. This meant a rather quiet, private setting for Anglo and acculturated mothers and the children they taught, and a rather noisy family affair for cells representing extended families. It is interesting to note that MA grandmothers would often join the mother in presenting the tasks and encouraging the child's performance. Chinese-American grandmothers would not intervene directly, but would keep up a steady patter telling the mother what she had done right and wrong in the teaching.

A good bit of discussion took place around the important problem of how to say "thank you" to the participants

in our research. Our first intention was to give a verbal thanks to the middle-class participants and a token payment ($5.00) to lower-class participating mothers. We discussed this matter with several MA and CA leaders. In the case of Chinese parents, the advice was to send gifts of oranges, a traditional Chinese gift of gratitude. MA leaders disagreed. Some voted for flowers; others for money. One militant leader insisted that if a Chicano mother promised to participate, she would be humiliated by payment. Still the logic of money seemed especially strong in the case of the poorer families. In the final act, we sent oranges to the CA mothers and money only to the Spanish-speaking MA mothers.

APPENDIX C

GAME INSTRUCTIONS

Mrs. _____, my name is _____. Thank you for helping us with our study about how children learn. There are two games we would like you to teach your (son/child). As you do so, we would like to take pictures so that we can study how the learning proceeds. (Explain video equipment and get release signed.) Here are the games you are to teach.

1. These are pieces of cloth that have different sizes, shapes and colors. They can be divided in three ways--by placing them in these two boxes according to color (demonstrate), shape (demonstrate), or size (demonstrate). We would like you to teach your child to do this. See if you can teach him the three ways to do it. Here is a card to remind you of the rules of this game.

"Teach your child to divide the pieces into the two boxes according to: color, shape, size."

2. Here is a beanbag toss game. We would like you to teach your child to get the bag in the bucket IN A CERTAIN WAY. The child is to stand facing the bucket and throw the beanbag (demonstrate). There are two places where we want the child to stand. First, have the child stand one step away from the bucket. After he gets the bag in the bucket from there, have him move back another step and try from there. The child may have as many tries as he needs.

You play the game three ways. First, let the child use whichever hand he wants for the throw (but use the same hand every try). After he gets the bag in from both places, have him use his other hand, beginning from one step away. Finally, teach him to throw the bag with both hands, again from both places. Here is a card to remind you of the rules.

"Places: 1. Face bucket, one step away.
2. Two steps away.

Ways to play: 1. Hand child chooses.
2. Other hand.
3. Both hands."